

WHAT IS CLAIMED IS:

- 1 1. A reinforced composite vehicle load floor of the sandwich
2 type having a cellular core, the load floor comprising:
3 a load-bearing upper skin made of a reinforced thermoplastics
4 material;
5 an upper skeletal frame structure of reinforcing slats;
6 a cellular core made of a thermoplastics material;
7 a lower skeletal frame structure of reinforcing slats; and
8 a bottom skin made of a reinforced thermoplastics material; the upper
9 and lower skeletal frame structures of reinforcing slats being positioned
10 symmetrically with respect to a plane formed by the cellular core at predetermined
11 places against the skins and the cellular core.
- 1 2. The load floor as claimed in claim 1 wherein slats of each of
2 the frame structures are positioned adjacent to front, back and side edges of the load
3 floor.
- 1 3. The load floor as claimed in claim 2 wherein slats of each of
2 the frame structures extend from positions adjacent the front, back and side edges
3 of the load floor to a center of the load floor.
- 1 4. The load floor as claimed in claim 1 further comprising at
2 least one outer covering layer made of a woven or non-woven fabric disposed on the
3 upper skin wherein the load floor is a carpeted load floor.
- 1 5. The load floor as claimed in claim 1 wherein the load floor
2 is substantially flat and is obtained from a single pressing stage.
- 1 6. The load floor as claimed in claim 1 wherein the load floor
2 is a deep-drawn load floor and wherein the load floor is obtained from a pair of
3 pressing stages.

1 7. The load floor as claimed in claim 5 wherein the single
2 pressing stage has a forming pressure for forming the load floor which lies in the
3 range 10^6 Pa to 3×10^6 Pa.

1 8. The load floor as claimed in claim 1 wherein while the load
2 floor is being formed, the skins have a forming temperature lying in the range
3 approximately 160°C to 200°C .

1 9. The load floor as claimed in claim 1 wherein the skins are
2 made of a woven fabric or mat of glass fibers and of a thermoplastics material.

1 10. The load floor as claimed in claim 1 wherein the reinforcing
2 slats of the skeletal frame structures are made of reinforced thermoplastic composite.

1 11. The load floor as claimed in claim 10 wherein the composite
2 is fiber-reinforced.

1 12. The load floor as claimed in claim 11 wherein the composite
2 includes a depolymerizable and repolymerizable thermoplastic polymer resin.

1 13. The load floor as claimed in claim 12 wherein the resin is a
2 thermoplastic polyurethane.

1 14. The load floor as claimed in claim 9 wherein the
2 thermoplastics material of the skins is a polyolefin and preferably polypropylene.

1 15. The load floor as claimed in claim 1 wherein the cellular core
2 has an open-celled structure of the tubular or honeycomb cell type, constituted
3 mainly of polyolefin and preferably polypropylene.

1 16. The load floor as claimed in claim 1 wherein the load floor
2 is capable of supporting 240 pounds of weight over 100 square inches with not more
3 than 10 millimeters of deflection.

1 17. The load floor as claimed in claim 1 wherein the load floor
2 is a structural component of a vehicle passenger compartment.

1 18. The load floor as claimed in claim 5 wherein the load floor
2 has a substantially uniform thickness at a central portion thereof.

1 19. The load floor as claimed in claim 6 wherein the load floor
2 has a substantially uniform thickness at a central portion thereof.

1 20. The load floor as claimed in claim 19 wherein the depth of
2 load floor is more than ten times its thickness.

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